Operation/Service/Parts

HP50 High Pressure Lubricators

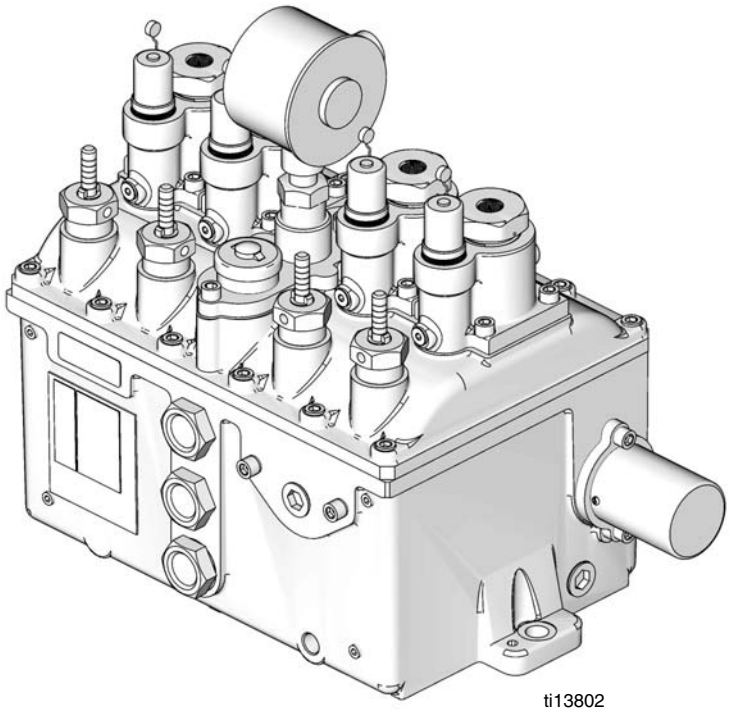
311842C
Bulletin 40240/51030
EN

For dispensing non-corrosive and non-abrasive oils and synthetic-based lubricants.

Models: 258262, 258263, 562925, 562926, 562927, 562928, 562929, 564276, 564277, 564278, 564279, 564280, 564281, 564282, 564284

HP50: 50,000 psi (344 MPa, 3,447 bar) Maximum Working Pressure

Important Safety Instructions
Read all warnings and instructions in this manual. Save these instructions.



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PROVEN QUALITY. LEADING TECHNOLOGY.

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure-specific risk. Refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

⚠ WARNING

FIRE AND EXPLOSION HAZARD

When flammable fluids are present in the work area, such as gasoline and windshield wiper fluid, be aware that flammable fumes can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources, such as cigarettes and portable electric lamps.
- Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline.
- Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.
- Ground all equipment in the work area.
- Use only grounded hoses.
- If there is static sparking or you feel a shock, **stop operation immediately.** Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS forms from distributor or retailer.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

ELECTRIC SHOCK HAZARD

Improper grounding, setup, or usage of the system can cause electric shock.

- Turn off and disconnect power at main switch before disconnecting any cables and before servicing equipment.
- Connect only to grounded power source.
- All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

⚠ WARNING

SKIN INJECTION HAZARD

High-pressure fluid from dispense valve, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**

- Do not point dispense valve at anyone or at any part of the body.
- Do not put your hand over the end of the dispense nozzle.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Follow **Pressure Relief Procedure** in this manual, when you stop dispensing and before cleaning, checking, or servicing equipment.

MOVING PARTS HAZARD

Moving parts can pinch or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** in this manual. Disconnect power or air supply.

SUCTION HAZARD

Never place hands near the pump fluid inlet when pump is operating or pressurized. Powerful suction could cause serious injury.

BURN HAZARD

Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns, do not touch hot fluid or equipment. Wait until equipment/fluid has cooled completely.

PERSONAL PROTECTIVE EQUIPMENT

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. This equipment includes but is not limited to:

- Protective eyewear
- Clothing and respirator as recommended by the fluid and solvent manufacturer
- Gloves
- Hearing protection

Installation

NOTICE

All installation, maintenance, and repair work **must** be completed by qualified personnel.

System Connections

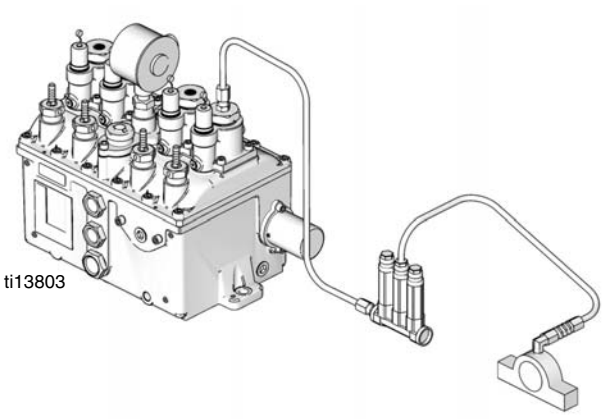


FIG. 1

- Install each pumping unit with a high pressure check valve in the discharge line adjacent to the pump discharge connection so that pump assembly may be removed from reservoir without loss of lubricant in lines (FIG. 1).
- Install a second of these valves at the point of lubrication to prevent line drainage and feedback of system pressure to pump (FIG. 1).

Operation

Oil Level

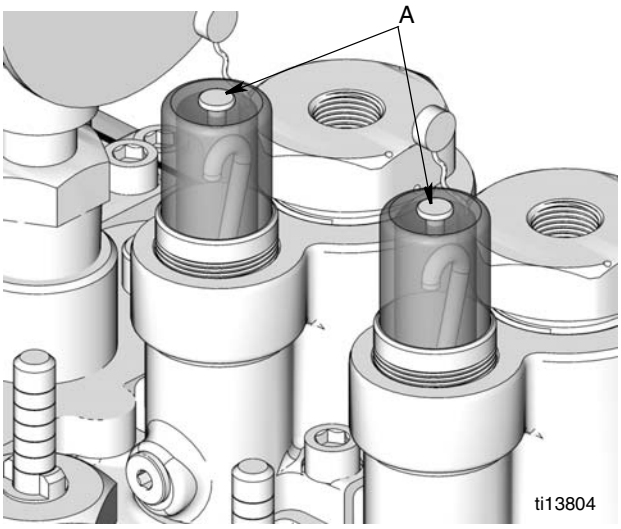


FIG. 2

1. Remove vent plugs (A) located on the top of the pump sight glasses to allow lubricant to rise in the drip tube to the level of the oil in the reservoir and reduce the priming required at start up (FIG. 2).

2. Completely fill the lubricator reservoir with clean filtered lubricant.

NOTE:

- Three sight glasses (B) are provided in the reservoir at various levels to permit observation of fluid level (FIG. 3).
- Oil level should not be allowed to drop below the bottom sight glass.

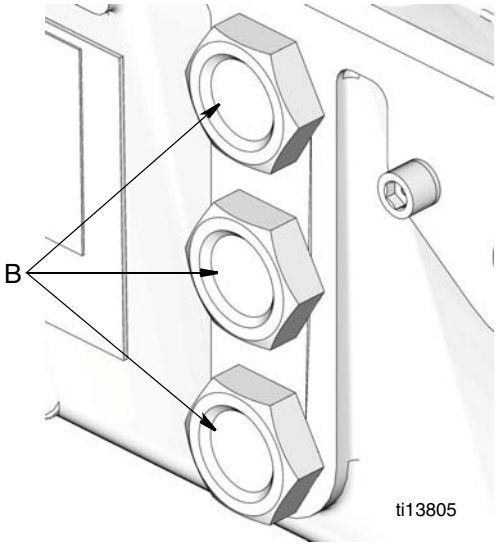


FIG. 3

Pump Priming

To prime the pump:

1. Turn the feed adjustment nut (C) on the indicator stem as far as possible in a clockwise direction (FIG. 4).

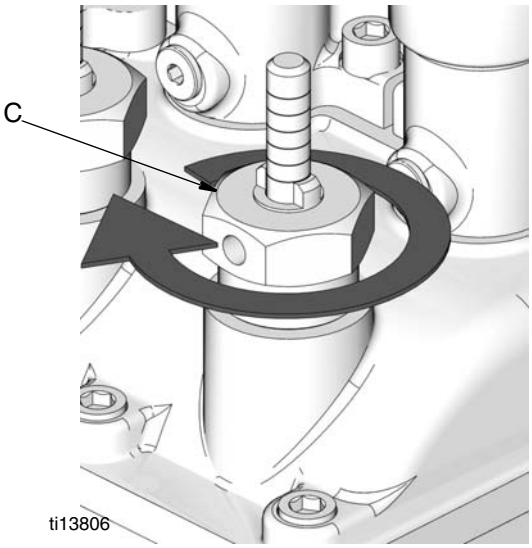


FIG. 4

2. Remove the vent plug (A) on top of the sight glass and fill the housing sight well with oil to 3/8-inch below the discharge of the drip tube (FIG. 5).

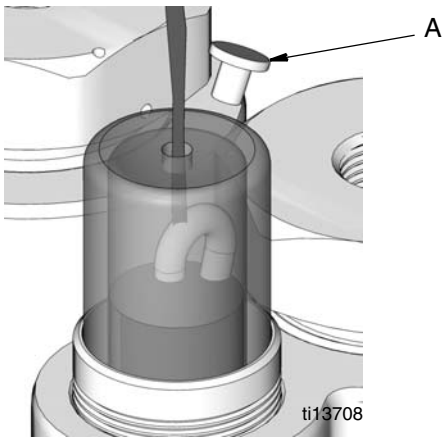


FIG. 5

3. Replace the vent plug (A). Check the sight glass to insure that it is properly seated against the o-ring (D) to prevent air leakage into the sight well (FIG. 6).

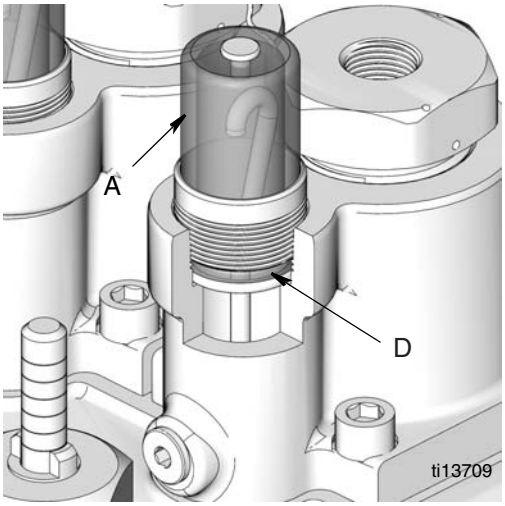


FIG. 6

4. Adjust the pumping rate to the desired delivery.

Pumping Rate

During the pump suction stroke an amount of oil equal to the pump displacement is drawn through the drip tube into the sight well. The amount of fluid in the site tube indicates the pumping rate.

NOTE: Allow sufficient time to insure an accurate rate indication. The drip tube flow rate is only accurate ***after*** the pump has operated long enough to stabilize the pressure inside the sight well.

There is a time lag at start-up, during low pumping rates, and during pump rate changes.

Regulating Pump Rate

The pumping rate is adjusted by hand during the pump suction stroke.

- Turn feed adjustment nut (C) clockwise as far as it can go to achieve maximum pumping rate (FIG. 7.

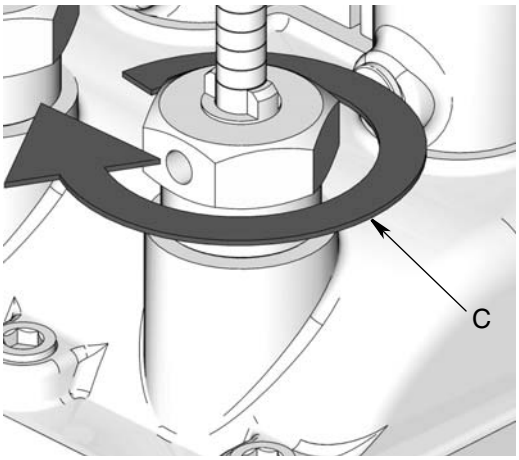


FIG. 7

- Turn the feed adjustment nut (C) counter-clockwise to reduce the pump stroke and delivery (FIG. 8).

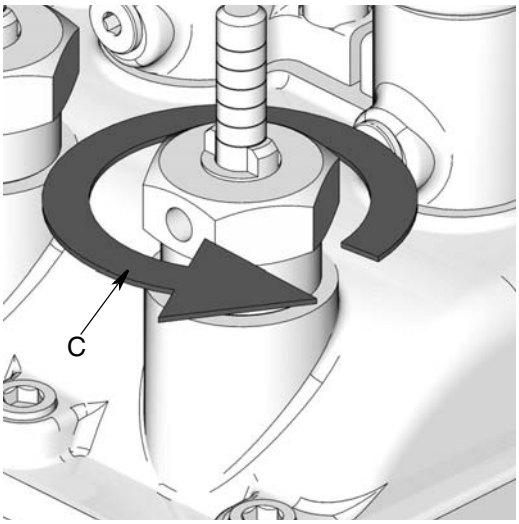


FIG. 8

Service

Pressure Relief Procedure

The equipment stays pressurized until pressure is relieved. To reduce the risk of serious injury from pressurized fluid, accidental spray from the dispenser, or splashing fluid, follow this **Pressure Relief Procedure** whenever you:

- Check, clean or service any system equipment.
- Install or clean fluid nozzles.

1. Disconnect power supply.
2. Open any bleed-type master air valves and fluid drain valves in the system.
3. Leave drain valves open until you have completed repairs and are ready to pressurize system.

NOTICE

- All installation, maintenance, and repair work **must** be completed by qualified personnel.
- If the correct pumping rate is maintained, no service is required other than periodic replenishment of the reservoir.

Service Instructions

1. Check lubricator operation by observing the drip tube. If the sight glass well pumps dry or no flow is observed, check the following points until the cause is determined and corrected.
    - Check the vent plug (A) for proper sealing. Any knicks or cracks in the rubber plug will cause an air leak into the sight glass (FIG. 9).

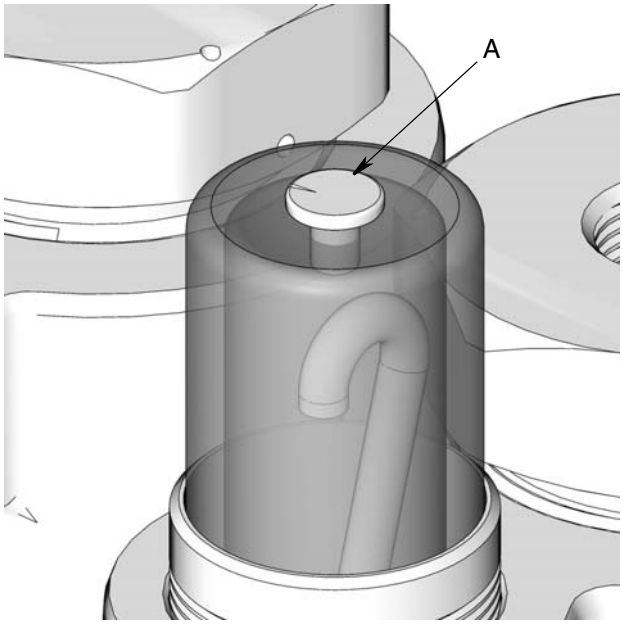


FIG. 9

- Check shaft rotation. If the lubricator shaft is not rotating, determine the cause and repair as necessary.

- Check oil level and viscosity. Be sure the reservoir is filled with oil, and if necessary heat the reservoir to maintain viscosity at the correct level for the desired flow.
- Check pump priming. If necessary, prime the pump in accordance with the operating instructions, page 5.
- Check the feed adjustment (C, FIG. 7 and FIG. 8, page 6) and adjust if the pumping rate is too low.
- Check the actuating linkage for proper operation. If defective, isolate the broken part and repair or replace as required.

2. If items listed in step 1 are not the cause, check the pump assembly. The following items should be checked before removing the pump assembly from the cover.

   - Check the sight glass for inward leakage due to a crack in the sight glass, improper sight glass seating, or a defective o-ring. Repair as required (FIG. 6, page 6).
   - Check for an obstruction in the drip tube and remove if found.

MOVING PARTS HAZARD

Exercise extreme care if equipment is operating. Rotating equipment can cause serious injury.

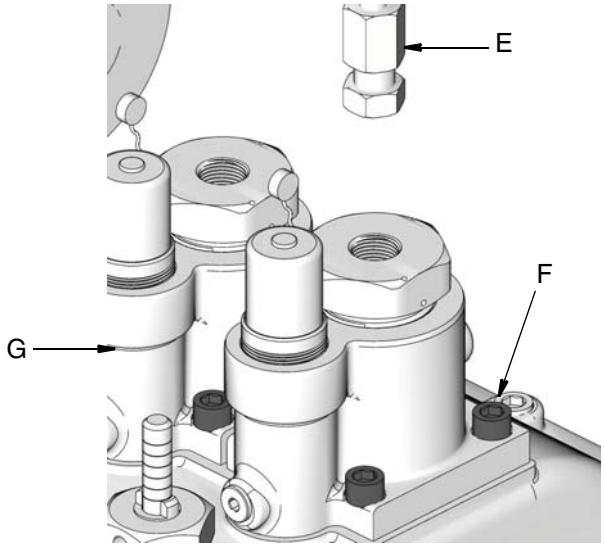


FIG. 10

- If these steps do not isolate the malfunction:

  a. **Relieve system pressure**, page 7.

  b. Disconnect the discharge tubing (E) (FIG. 10).

  c. Remove 4 screws (F) holding pump to cover (FIG. 10).

  d. Remove the pump assembly (G) (FIG. 10).

NOTE:

- Keep a spare pump on hand for use during emergencies and when the pump is being repaired.
- If a spare pump is available, it will not be necessary to stop the equipment the lubricator is installed on or to empty the reservoir.

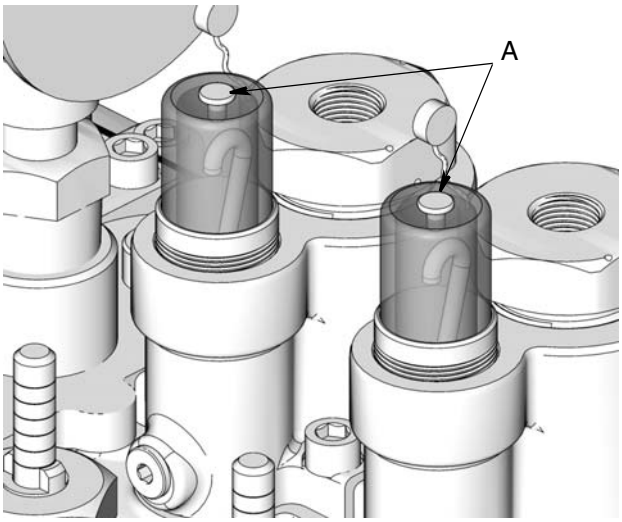


FIG. 11

- If the sight glass fills with lubricant proceed as follows:

  a. **Remove system pressure**, page 7.

  b. Remove vent plug (A) (FIG. 11).

  c. Allow the lubricant to pump down to the proper level.

d. Replace vent plug (A).

The pump should operate normally.

- If the sight glass continues to fill with lubricant:

a. Check all terminal check valves for proper operation.

b. **Relieve system pressure**, page 7.

c. If valves are operating properly, disconnect the discharge tubing (E) (FIG. 10)

d. Remove 4 screws holding pump to cover (FIG. 10, page 8).

e. Remove pump assembly.

f. Clean pump assembly.

g. Reinstall pump assembly to cover and check operation.

3. If the sight glass still fills with lubricant it may be caused by temperature variation.

- When the unit is not operating:

a. **Relieve system pressure,** page 7.

b. Remove vent plug (FIG. 11, page 8).

c. Allow lubricant to pump down to the proper level.

d. Replace vent plug.

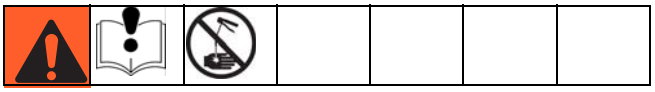
The pump will now function properly. The sight glass may fill with fluid without affecting the operation of the lubricator as long as the drip tube remains above the lubricant level to show the rate of pumping.

- When the unit is operating the sight level will vary depending on temperature variations.

a. If the level falls to less than 1/4 inch above the sight glass flange, add lubricant to the proper level (3/8 inch below the discharge of the drip tube) through the vent hole.

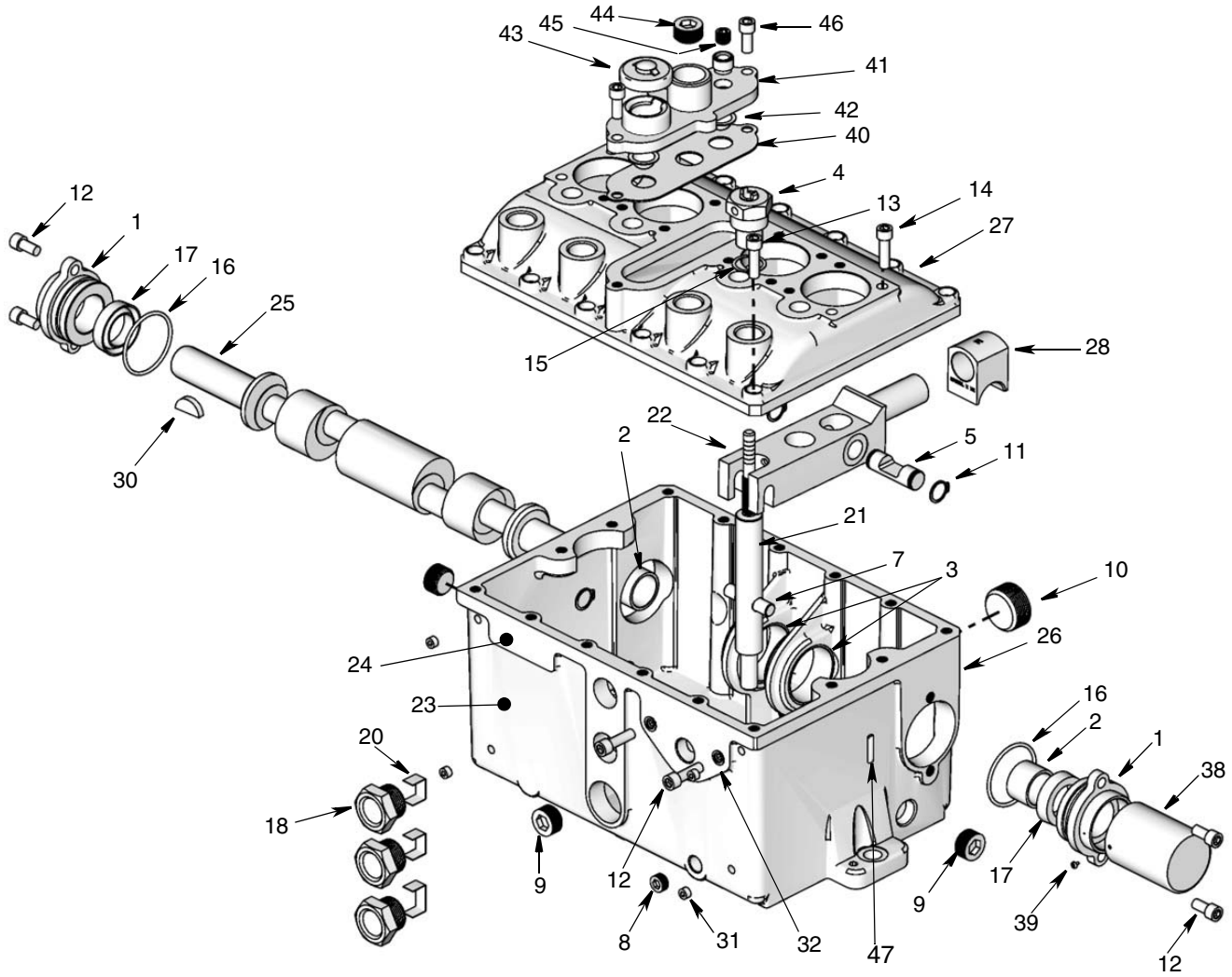
b. If the level is too high, remove the vent plug and allow the unit to pump down before replacing the vent plug.

Other servicing that may be required is listed below:



- Clean lubricator periodically to eliminate contamination that may have occurred in the oil. To accomplish this, remove all pumping units and clean the pumps and reservoir by brushing loose all foreign matter, dipping in solvent and blowing dry with compressed air.
- If external leakage is observed, determine the cause (loose bolts, defective gaskets, or seals) and repair as required.

High Pressure Lubricator Parts



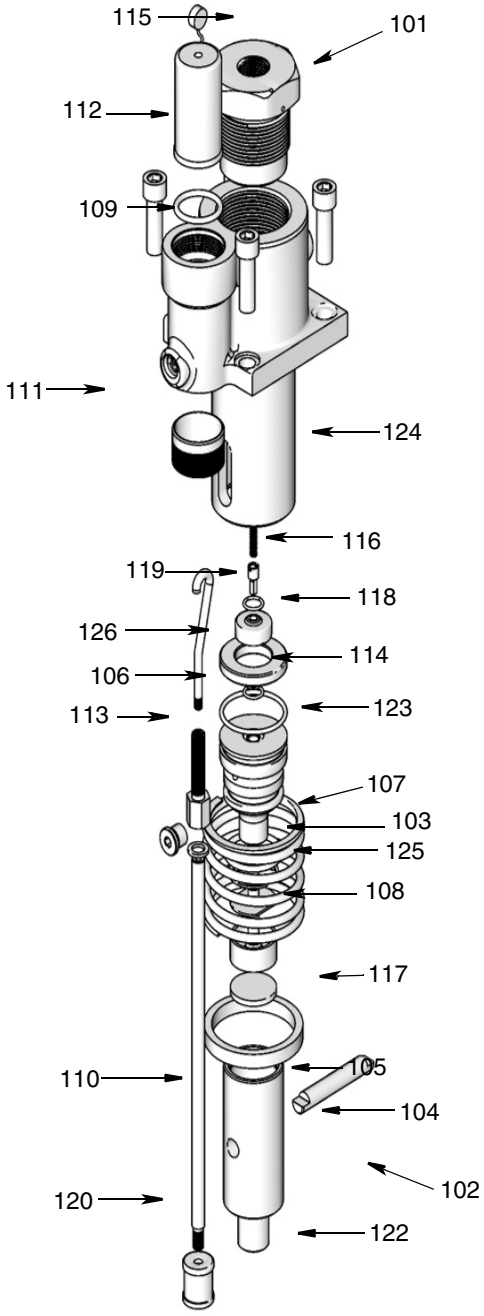
Ref	Part No.	Description	Qty
1	556340	BEARING, ecc shaft	2
2	556343	BEARING, slv, bronze	2
3	560148	BUSHING, reservoir	2
4	560157	NUT, fluid adjustment	4
5	560169	PIN, lever	4
7	560171	PIN, adjustment rod	4
8	555444	PLUG, 3/8” pipe square head	1
9	555450	PLUG, 3/4” pipe hex soc	3
10	556450	PLUG, hex-sckt 1 1/4 npt	1
11	555552	RING, retainer	8
12	555603	SCREW, 3/8-16 X .75 soc hd cap	4
13	555605	SCREW, 3/8-16 X 1.25 soc hd cap	26
14	555606	SCREW, 3/8-16 X 3.50 soc hd cap	4
15	556523	WASHER, copper 1.0 id	4
16	555664	O-RING ,-228 buna-n 70 duro	2
17	556579	SEAL,LIP 1.25 ID 2.00 OD .25 W	2
18	556683	SIGHTGLASS	3
20	556685	PLATE, oil level	3
21	560281	ROD, fluid adjusment	4

Ref	Part No.	Description	Qty
22	560284	LEVER, pump	4
23	556836	LABEL, operating instructions	1
24	556872	LABEL, identification	1
25	557062	SHAFT, crank	1
26	15M340	RESERVOIR	1
27	560398	COVER, reservoir	1
28	560483	LEVER, shoe	4
29	562952	PUMP (page 11)	4
30	555379	KEY	2
31	110208	PLUG, pipe, headless	4
32	15W154	WASHER	2
36	555451	PLUG, steel	1
37	563024	SWITCH, low level exp proof (not shown)	1
38	557122	COVER, shaft end	1
39	555483	SCREW, #4 X .187 pan head self tap	2
40	556745	GASKET	1
41	563090	PLATE, filler	1

Ref	Part No.	Description	Qty
42	557149	STRAINER, filter	2
43	557171	COVER, oil hole	1
44	557391	PLUG, dryseal, 1/4 nptf	1
45	555451	PLUG, pipe	1
46	556517	SCREW, socket head 3/8 x 15 x 0.875	1
47	555424	PIN, 0.312 Diameter groove type 2A	2

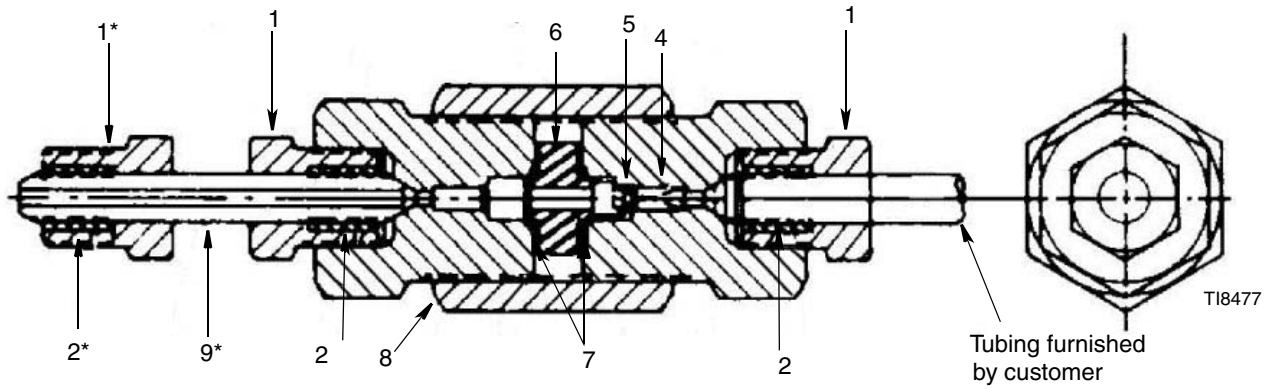
Pump Parts

Ref	Part No.	Description	Qty
101	560162	NUT	1
102	560172	PIN, collar	1
103	555564	RING, retainer	1
104	560195	RING, retaining spring	1
105	556522	DISK, thrust	1
106	555691	O-RING, -127	1
107	555694	O-RING, -217	1
108	560233	SPACER, .995 id x .500 long	1
109	560235	TUBE, drip	1
110	562989	TUBE, suction	1
111	555724	PLUG, #4 SAE	1
112	564151	KIT, sight glass	1
113	556746	GASKET, suction tube nut	1
114	556747	O-RING	2
115	555746	SEAL, wire lead .437 diameter	1
116	556936	SPRING, check valve	1
117	556937	SPRING, plunger	1
118	560340	SEAT, valve	1
119	560344	VALVE,	1
120	557155	STRAINER, suction	1
122	560425	PLUNGER, pusher	1
123	563111	VALVE, plunger	1
124	560443	HOUSING, pump	1
125	557191	COLLAR, piston	1
126	560492	COLLAR	1



Check Valve Parts Drawing and Parts List

564335 - Discharge check valve
564336 - Terminal check valve



*Supplied with Discharge Check Valve 564335 only.
Not supplied with Terminal Check Valves.

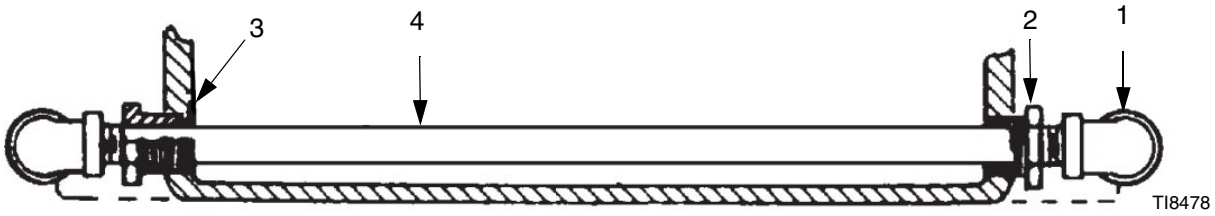
564335 Discharge Check Valve - 3/8" OD Tube

Ref.	Part No.	Description	Qty.
1	556783	NUT, Gland	3
2	556781	COLLAR	3
4	556936	SPRING, Valve	1
5	560343	VALVE	1
6	560339	SEAT, Valve	1
8	561354	BODY, Check Valve	1
9	558823	NIPPLE, Check Valve	1
10	560161	NUT	2
11	556747	O-RING	2

564336 Terminal Check Valve

Ref.	Part No.	Description	Qty.
1	556783	NUT, Gland	2
2	556781	COLLAR	2
4	556936	SPRING, Valve	1
5	560343	VALVE	1
6	560339	SEAT, Valve	1
8	561354	BODY, Check Valve	1
10	560161	NUT	2
11	556747	O-RING	2

Steam Heater Parts Drawing and Parts List



Ref.	Part No.	Description	Qty.
1	558792	ELBOW, 1/4 NPT Steam Pipe	2
2	561335	SEAL PLUG, Steam Pipe	2
3	558693	SEAL, Steam Pipe	2
4	560179	STEAM PIPE	1

Technical Data

Plunger Diameter	1/4 in. (0.64 cm)
HP-50 Maximum Operating Pressure	*50,000 psi (344 MPa, 3,447 bar)*
Reservoir Capacity	*9 quarts (8.5 liters) from centerline of top gauge glass to centerline of bottom gauge glass*
Maximum Pumping Rate based on SAE 40 oil — (approx. 4 drops)	0.008 in^3 (0.133 cc) per stroke
Minimum Pump Rate	0.001 in^3 (0.017 cc) at max. pressure
Reservoir Heating (optional)	Steam or Electric
Lubricant Viscosity	100 to 5000 SUS
Operating Temperature	-200°F to 1200°F (-129°C to 649°C)

LUBRICATOR CHARACTERISTICS					Pumping Unit Displacements‡							
Model	Number of Feeds	Maximum Operating Pressure	Reservoir Capacity (Quarts)†	Plunger Diameter (Inches)	Drops / Stroke		cu. in. / Stroke		cc / Stroke		Strokes / min.	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
HP-50	1 to 4	50,000	9	1/4	4	1	0.008	0.002	0.133	0.033	36	3

† *Usable reservoir capacity, as measured from centerline of top gauge glass to centerline of bottom gauge glass (see page 10).*

‡ *All displacements are based on SAE 30 oil (500 S.U.S. at 100°F.) at room temperature. Volumetric equivalents of drops are: 14,115 drops equal 1 pint, 490 drops equal 1 cu. in., 30 drops equal 1 cc.*

Construction Materials

Reservoir and Cover - Heavily ribbed cast iron.

Cylinder - Hardened alloy steel, precision-honed.

Plunger - Hardened alloy steel, precision-ground and fitted.

Valves - Poppet type, flat face, hardened and ground alloy steel.

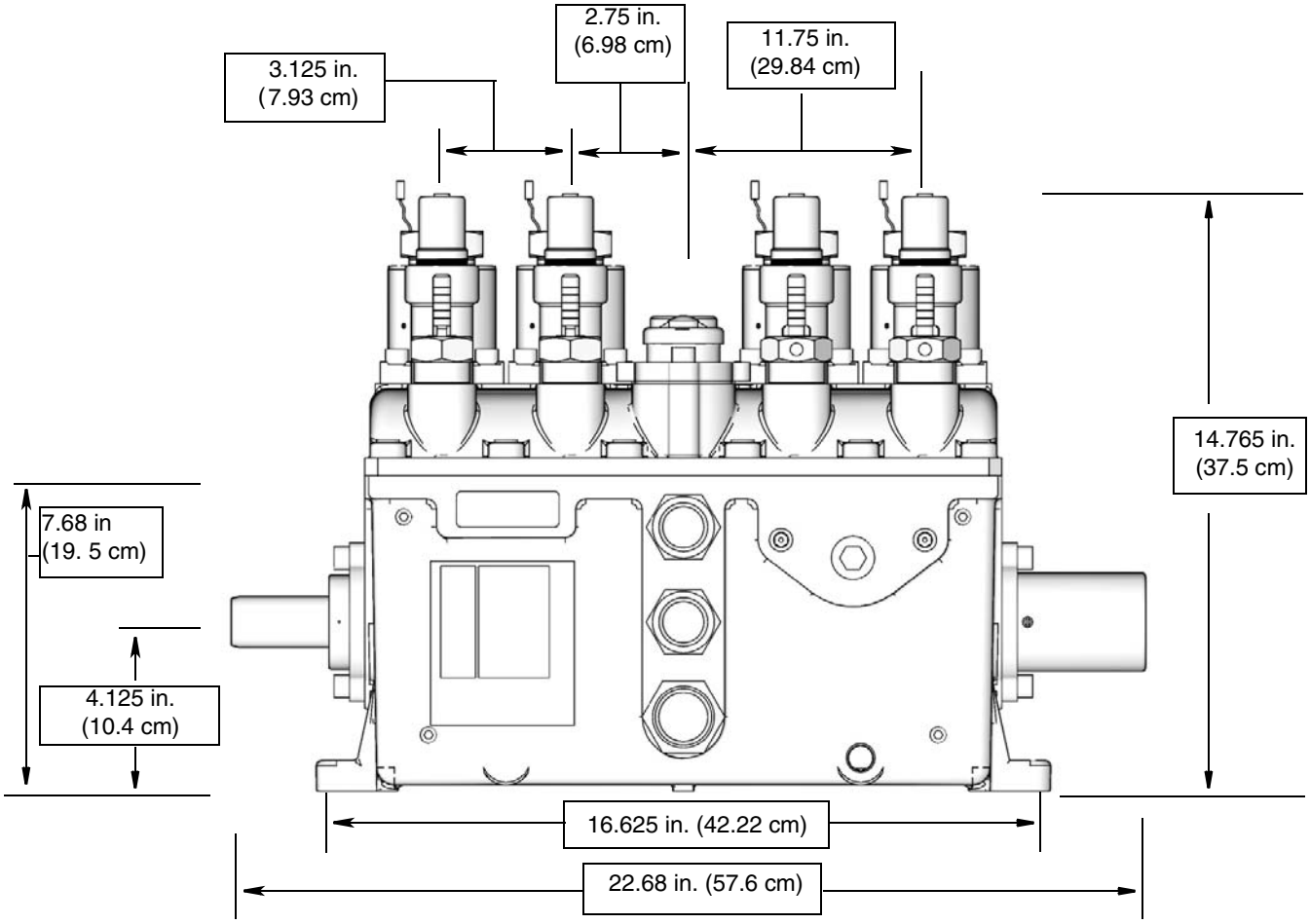
Valve Seats - Hardened and ground alloy steel.

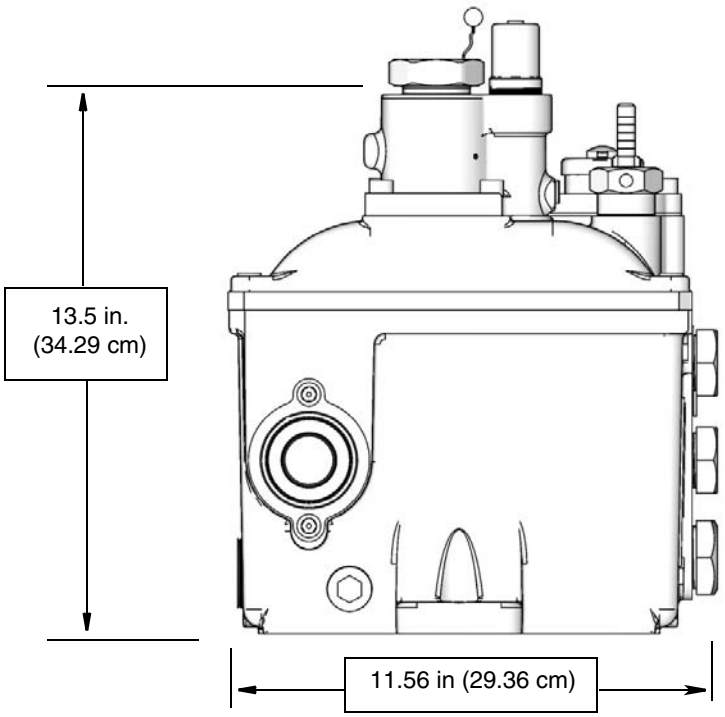
Driveshaft - Integral crankshaft type, hardened, ground and polished alloy steel, machined from solid bar.

Bearings - Bronze bushed, high load capacity, long-life, self-lubricating type.

Regulating Lever - Forged steel.

Dimensions





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NOTES

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

FOR GRACO CANADA CUSTOMERS

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Graco Information

TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.
Phone: 612-623-6928 **or Toll Free:** 1-800-533-9655, **Fax:** 612-378-3590

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For patent information, see www.graco.com/patents.

Original instructions. This manual contains English. MM 311842

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Revised April 2012